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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,918

05/10/2005

Antonino Toro

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22852

7590

12/09/2008

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EXAMINER

CREPEAU, JONATHAN

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,918	Applicant(s) TORO ET AL.	
	Examiner Jonathan Crepeau	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/10/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 5 and 9 are objected to because of the following informalities: in claim 5, “Th” should be “The”; in claim 9, “centring” should be “centering.” Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Rothmayer et al (U.S. Patent 4,233,146). The reference is directed to an electrochemical cell such as a fuel cell (i.e., electrochemical generator) or electrodialyzer (see col. 1, line 6). In Figs. 2a-2h, an exemplary embodiment of an electrodialyzer is shown. Referring to Fig. 2a, a gasket (20) contains a fluid inlet (24) and a fluid outlet (26) and a porous collector/distributor (22) in correspondence of the active area. Fluid flows through an inlet distribution structure (16) and an outlet distribution structure (18). As shown in the drawing, the inlet structure contains islands (16) that are spaced close together and the outlet structure contains islands that are spaced further apart. Thus, the inlet structure is capable of generating a larger localized pressure drop than the

outlet structure, because the channels of the inlet structure are narrower and fluid velocity would be increased. It is noted that instant claim 1 recites that localized pressure drops in an "extraction device" are higher than a "feed device." However it is submitted that the structure of Rothmayer et al. is sufficient to anticipate claim 1 because all of the structural elements of the claim are present, and the inlet distribution structure of the reference is capable of functioning as the claimed "extraction device" (as well as the outlet distribution structure being capable of functioning as the claimed "feed device") if the fluid is flowed through the cell in the direction opposite from that described in the reference. Stated another way, the cell of Rothmayer et al. is capable of being used in the manner recited in claim 1. As such, it meets the claim (MPEP 2114).

Regarding claim 2, the "feed device" comprises manifolds (26), and distributing channels (18), and the "extraction device" comprises manifolds (24) and collecting channels (16). Regarding claims 3-5, the structure of the reference is capable of generating the claimed pressures/pressure drops. Regarding claim 10, the collecting channels (islands 16) can be made of a plastic such as polyethylene, which is hydrophobic (see col. 3, line 40).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1795

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7, 8, 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothmayer et al.

The reference is applied to claims 1-6, 9, 10, and 13 for the reasons stated above.

However, the reference does not expressly teach that the collecting channel has a higher length than the distributing channel, or that the amount of collecting channels is lower than the amount of distributing channels as recited in claim 8.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be sufficiently motivated to adjust these parameters to affect the flow characteristics in the cell of Rothmayer et al. The reference provides a detailed discussion at column 3, line 63 et seq. of the factors involved in selecting the design of the feed device and extraction device. It would be obvious to configure the extraction device so that the collecting channels were longer or more tortuous, or that there were fewer of them relative to the distributing channels of the feed device.

The reference further does not expressly teach that the sealing gaskets are provided with centering holes symmetrical with respect the vertical axis and asymmetrical with respect to the horizontal axis, as recited in claim 9. However, insofar as the holes “68”, “70” shown in Figure 2c are not already “centering holes,” it would be obvious to provide such holes for the purposes of securing the stack elements together with a bolt or tie rod. Furthermore, if the orientation of

the cell in Fig. 2c is changed by ninety degrees, the above-mentioned holes 68, 70 would be symmetrical about a vertical axis but asymmetrical about a horizontal axis.

The reference further does not expressly teach that the plastic of the collecting channel is a fluoropolymer such as PTFE, as recited in claims 11 and 12. However, the use of such a material would have been obvious because the plastic disclosed by the reference is not particularly limited and PTFE is a suitable inert material, which is a criterion identified by the reference in column 3, line 38. As such, the use of a PTFE would be rendered obvious. Further, the limitation that the polymer is made by applying a suspension is treated as a product-by-process limitation and is given little weight (MPEP 2113).

Finally, as recited in claim 14, the reference does not appear to teach that the distributing and collecting channels are obtained in the interior of bipolar plates delimiting the elementary cells. However, the use of the distributing and collecting channels in a fuel cell would render this configuration obvious. It is well-known that in fuel cell stacks such as PEM fuel cells, the reactants are supplied to the electrodes via bipolar plates having flow channels thereon. It would therefore be obvious to incorporate the distributing and collecting channels of Rothmayer et al. into a bipolar plate in a fuel cell stack since in this location the distributing and collecting channels would appropriately guide the reactants from the manifolds to the plate flow channels.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299.

The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
December 10, 2008